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Northeastern Area
State & Private Forestry
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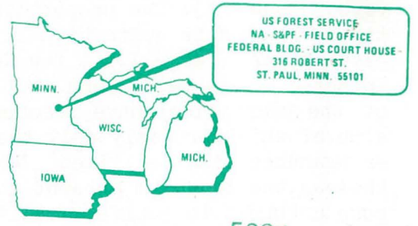

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SURVEY FOR SCLERODERRIS CANKER ON THE TOFTE DISTRICT OF THE SUPERIOR NATIONAL FOREST

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Scleroderris canker, a tree disease caused by the fungus Scleroderris lagerbergii Gremmen, has seriously damaged many conifer plantations in Europe and North America. The disease was first reported in the United States from Michigan in 1966 (Ohman 1966), but had been present there since at least 1951 (Schneider, 1961). Scleroderris canker was subsequently found in many red pine (Pinus resinosa) and jack pine (P. banksiana) plantations in northern Wisconsin and Upper Michigan. In 1969, it was discovered in one red pine planting and one red-jack pine plantation on the Superior National Forest in Minnsota (Skilling 1970). A survey of the red pine plantations surrounding the original Minnesota discoveries was made in 1970, to determine the extent of the area affected and to determine the damage infection has caused. William H. Morrissey, Tofte District summer employee, did the field work.

METHODS

Thirty - three red pine plantations established from 1958 to 1968 were surveyed. These are within a nine township area and comprise nearly all of the red pine plantations in the age group within a 10 mile radius of the known infection. Each plantation was first inspected to determine if Scleroderris infection was present. Trees in the lowest topographical areas in the plantations, where infection is mostly likely to be found, were examined for symtoms (dead branches). A plantation was considered uninfected if the characteristic yellow-green discoloration of the wood beneath the bark of dead branches was not found on any of the first 50 symptomatic trees examined. To estimate the extent of infection in stands where it was found, a form of the "nearest neighbor technique" was used. Straight lines, their locations selected subjectively with an attempt at a representative sample, were run across each plantation. Sampling points were established at one-chain intervals along these lines, and the nearest tree (of any species) to each point was located and its nearest neighboring red pine was inspected for infection. In most plantations 50 red pine were examined (30 in 2 small plantations, 100 in 1 large and 1 two-part plantation).

RESULTS AND DISCUSSION

Scleroderris canker was found in 14 of the 33 plantations examined. Infected plantations are located toward the center of the area of the plantations sur-

veyed (Figure 1). The proportion of trees infected is quite high in two plantations (Table I). A few dead infected trees were found, but most of the plantations have reached a size at which probably only the lower branches will be killed. Nevertheless, the inoculum present does pose a threat to conifer seedlings, either natural or planted, that are or will appear in the vicinity. The infection will probably spread from its present location into uninfected areas, but the rapidity with which it will do so is not known.

It is not certain how the fungus got into the Superior plantations. It is known that the stock in one infected plantation (P-50a) originated in Upper Michigan where infection has been present for some time. It is also known that this stock was only part of that shipped from Michigan 1954-1960. More surveys of this type are planned for 1971. These will be concentrated in the areas where the suspect stock was planted, if possible.

Table 1 - Plantations Infected With Scleroderris Canker, 1970 - Tofte District, Superior National Forest

Plantation	Location	Acres	Trees Examined	Trees Infected
P-8	T61 R4 S4	17	50	1
P-58a	T61 R5 S11	26	50	20
P-54a	T61 R5 S11	26	100	50
P-49e	T61 R6 S1,12	35	50	0*
P-54b	T62 R4 S33	23	50	3
P-48d	T62 R4 S21,22	42	30	1
P-47	T62 R4 S28	12	30	3
P-55j	T62 R5 S32	16	50	1
P-55i	T62 R5 S32	42	50	6
P-50a	T62 R5 S32	30	50	6
P-49c	T62 R5 S32	33	50	2
P-48a	T62 R5 S31	81	100	4
P-48c	T62 R5 S32	25	50	0*
P-49f	T62 R6 S35	14	50	1

* Infection detected in trees not included in survey to determine intensity within plantation

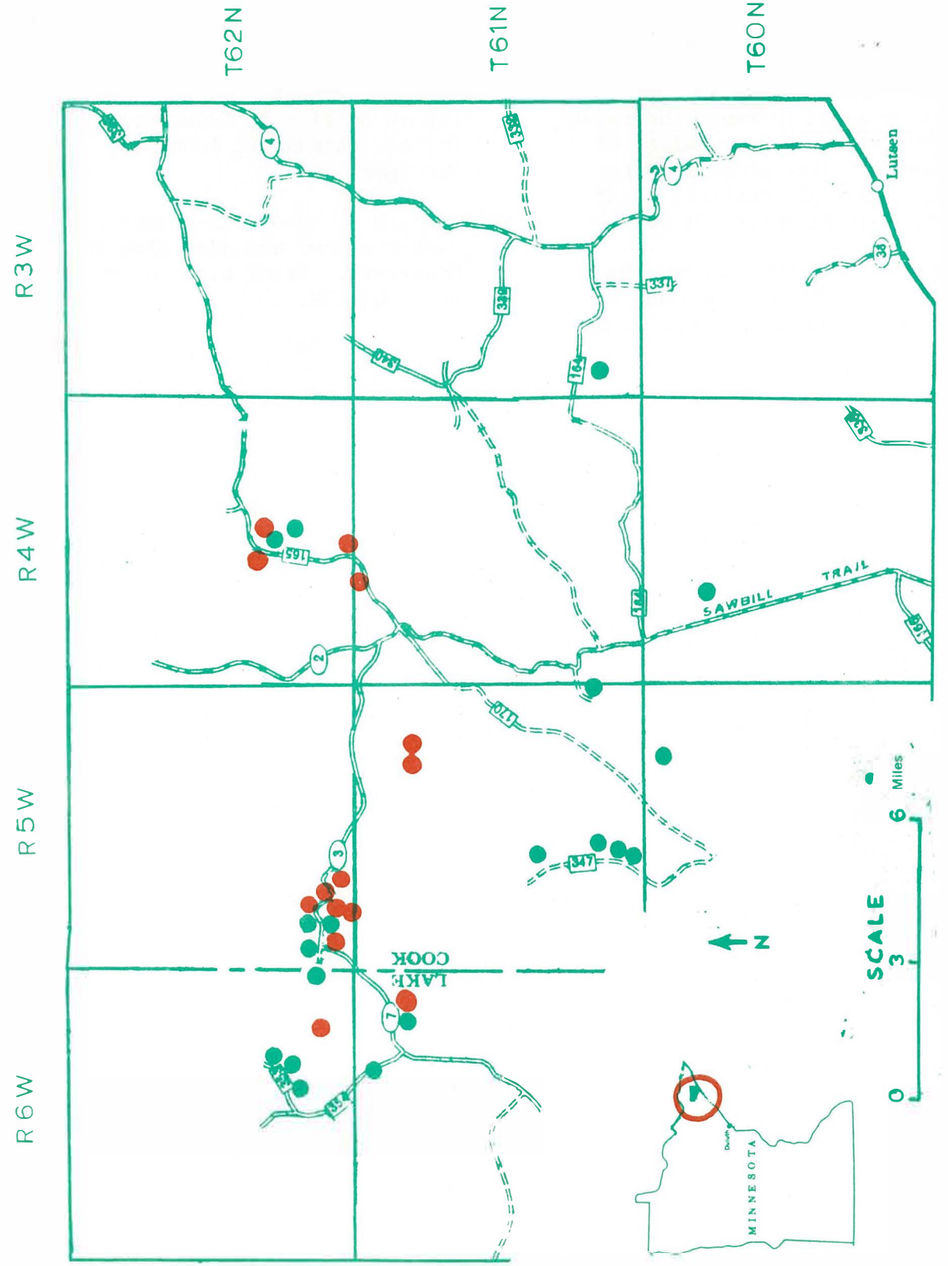

Figure I. Locations of Plantations Surveyed for Scleroderris Canker in 1970 - Tofte Ranger District, Superior National Forest. (● Infection found, ● Infection not found).